

SSRL Macromolecular Crystallography Remote Data Collection Workshop held in Australia

Over the last two years SSRL has supported remote access experiments for the macromolecular crystallography user community. Using advanced software tools that enable network based control of highly automated beam lines, users are able to screen samples and collect crystallographic data from remote locations, securely from anywhere in the world. Currently about 70% of the SSRL macromolecular crystallography community have screened and collected data remotely. The system makes use of high capacity sample storage cassettes and the Stanford Auto-Mounting (SAM) robotic system that is implemented on the macromolecular crystallography beam lines.

A remote data collection workshop was conducted on February 9, 2007 at the University of Melbourne. The workshop, organized by Peter Turner (University of Sydney) and Aina Cohen (SSRL), was attended by 29 participants representing 12 universities and research institutions within Australia and New Zealand.



The workshop began with a presentation by Julian Adams describing the protein crystallography facilities at the newly constructed Australian Synchrotron (AS). In particular, beam line 3BM1, which will be commissioned over the next few months, will be used for high-throughput structural biology and will support remote access experimentation in a similar manner as SSRL. The 3BM1 beam line will incorporate the SAM system and the Blu-Ice/DCS instrument control software package also developed at SSRL. Since remote users of the AS will use the same sample cassettes and the same control software as SSRL users, it will be convenient for them to take advantage of the remote access programs offered by both facilities especially while additional macromolecular crystallography beam lines at the AS are under development.

Workshop lectures covered a variety of topics including a description of the SAM system, the beam line control software and a demonstration of remote data collection. Practical tips were also presented from the users' point of view covering experiences from previous remote data collection runs. The hands-on-session included the mounting of samples in a cassette under liquid nitrogen and also into a uni-puck, a new universal storage container compatible with many robotic sample mounting systems. Several Australian researchers had previously shipped crystals to SSRL and were able to screen them for diffraction during the workshop. Participants had many helpful suggestions and found the workshop to be very useful overall. Many expressed interest in becoming a user of the SSRL remote access facilities.

